REMARKS

This is in response to the Office Action dated November 19, 2002. In view of the foregoing amendments and following representations, reconsideration is respectfully requested.

Initially, the specification and abstract have been reviewed and revised, and a substitute specification and abstract has been prepared. No new matter has been added. Also enclosed is a "marked-up" copy of the original specification and abstract to show the changes that have been incorporated into the substitute specification and abstract. The enclosed copy is entitled "*Version with Markings to Show Changes Made*."

Next, on page 2 of the Office Action, claims 2 and 10 are objected to based on an informality. Accordingly, these claims have been amended to clarify the claim language.

Next, on pages 3-4 of the Office Action, independent claims 1 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over van Phuoc et al. (U.S. Patent No. 5,796,239) in view of Stadnick et al. (U.S. Patent No. 5,283,512). This rejection is respectfully traversed for the following reasons.

The present invention is directed to residual capacity correction method for a battery in which a learning capacity (full charge capacity [FCC]; actual battery capacity) is corrected when an accumulated quantity of charge capacity of the battery is reached at a learning capacity, rather than when the battery is fully charged, or fully discharged.

Even if the battery charging is not repeated continuously, the present invention corrects the full charged capacity when the accumulated quantity reaches the learning capacity.

In the **van Phuoc** reference, the disclosed battery capacity calculation routine is related to correcting full charged capacity.

However, in the van Phuoc routine, the timing of the correction occurs after the battery is fully discharged as described in col. 7, lines 41-43, which state that:

> *"Thus a new CAP_{FC} value for the smart battery's actual capacity is learned after each full discharge cycle, as a function of the last fully integrated battery discharge cycle."* (emphasis added)

Accordingly, the van Phuoc correction method is similar to the conventional or related art method which is described in the background of the present invention. In any event, it is clear that van Phuoc does not disclose or suggest making a count of one cycle each time an accumulated quantity of a charge capacity of a battery reaches a set capacity, as required in claim 1.

Furthermore, it is submitted that **Standnick** does not disclose or suggest the claimed correcting timing as defined in claim 1 of the present invention. Also, **Hagiwara** discloses only a lithium ion secondary battery. Thus, it is clear that any combination of these references would also not teach the correction timing specified in claim 1.

In addition, the present invention, especially as defined in claim 7, accurately corrects full charge capacity of the battery kept in a state in which charge and discharge

are not performed over a long period, thus reducing errors in the indication of the residual capacity when the battery is subsequently used. This advantage is clearly not taught or suggested in the cited references. In particular, none of the references disclose or suggest a residual capacity correction method in which a learning capacity is decreased, by a keeping degradation capacity, as the period of time passes. Therefore, it is submitted that claim 7 is allowable over the prior art of record.

In view of the above, it is submitted that the present application is now clearly in condition for allowance. The Examiner therefore is requested to pass this case to issue.

In the event that the Examiner has any comments or suggestions of a nature necessary to place this case in condition for allowance, then the Examiner is requested to contact Applicant's undersigned attorney by telephone to promptly resolve any remaining matters.

Respectfully submitted,

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1. (Amended) A residual capacity correction method for a battery, the method comprising [the steps of]:

making a count of one cycle each time an accumulated quantity of a charge capacity of a battery reaches a set capacity; and

decreasing a learning capacity by a specified cycle degradation capacity per charge of the one cycle.

2. (Amended) A residual capacity correction method for a battery according to claim 1, wherein the set capacity [at which the count of the one cycle is made and the learning capacity is decreased,] is the learning capacity of the battery.

7. (Amended) A residual capacity correction method for a battery, the method comprising [the steps of]:

specifying a decreasing rate of a learning capacity as a keeping degradation capacity while a keeping temperature and a residual capacity of the battery are used as parameters; and

decreasing, as a keeping time passes, the learning capacity by the keeping degradation capacity specified from the keeping temperature and the residual capacity of the battery.

10. (Amended) A residual capacity correction method for a battery according to claim 9, wherein the set capacity [at which the count of the one cycle is made and the learning capacity is decreased,] is the learning capacity of the battery.

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